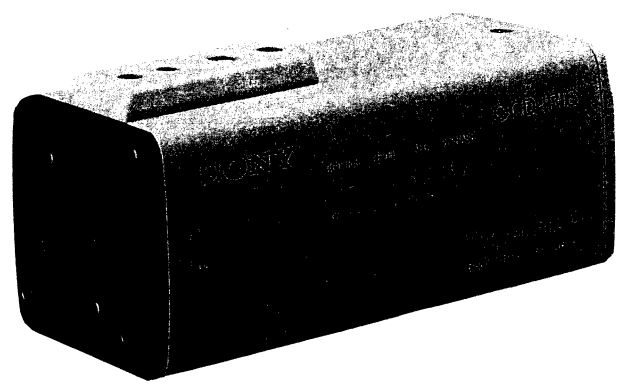
SONY

BLACK-AND-WHITE VIDEO CAMERA

SPT-M104CE

SERVICE MANUAL



Hyper HAD™

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1
GENERAL

This section is extracted from instruction manual.

SONY

3-757-367-25 (1)

Black-and-white Video Camera

Operating Instructions

Before operating the unit, please read these instructions thoroughly and retain them for future reference.

Mode d'emploi

Avant la mise en service de cet appareil, prière de lire attentivement ce mode d'emploi que l'on conservera pour toute référence ultérieure.

Manual de instrucciones

Antes de utilizar la unidad, lea detenidamente este manual, y consérvelo para futuras referencias.

SPT-M104A
SPT-M102CE/M104CE/M108CE

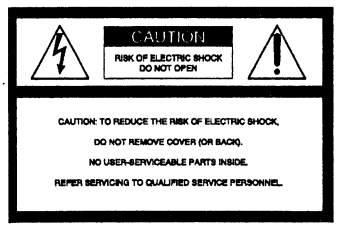
Sony Corporation © 1996 Printed in Japan

Owner's Record

The model and serial numbers are located on the bottom. Record these numbers in the spaces provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

NOTICE FOR THE SPT-M104A


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

English

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

For the customers in the USA (SPT-M104A only)
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Features

The SPT-M104A/M102CE/M104CE/M108CE black-and-white video camera is designed for use in a monitoring system.

- High resolution and high sensitivity with a 1/3 inch Hyper HAD™ (Hyper-Hole-Accumulated Diode) CCD (Charge Coupled Device) for the image device
- CCD-IRIS function
- AGC (Automatic Gain Control)
- AC line lock (SPT-M104A/M104CE/M108CE)
- Can be used with C or CS mount lenses
- Auto-iris connector for DC-driven type auto-iris lenses
- LEVEL and BLC (Back Light Control) adjustment for various lighting conditions
- Isolated power circuit

Notes on Use

Power supply

- The SPT-M104A must always be operated with a UL-listed 24 V AC, 60 Hz Class 2 power supply. In the U.S.A, use a power supply which is UL listed. In Canada, use a power supply which is CSA Certified.
- The SPT-M102CE must always be operated with a 12 V DC power supply.
- The SPT-M104CE must always be operated with a 24 V AC, 50 Hz power supply.
  - When connecting the transformer, be sure to connect each lead to the appropriate terminal. Wrong connection may cause malfunction and/or damage to the video camera.
  - Ground the unit or an irregular voltage may be generated in the AC power cord and may cause malfunction and/or damage to the video camera.
- The SPT-M108CE must always be operated with a 220 to 240 V AC, 50 Hz power supply.

Handling of the unit

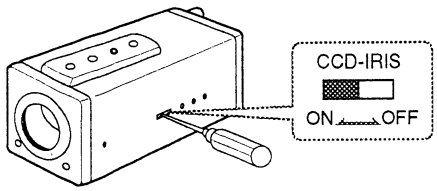
Be careful not to spill water or other liquids on the unit, or to get combustible or metallic material inside the body. If used with foreign matter inside, the camera is liable to fail, or to be a cause of fire or electric shock.

Operating and storage locations

Avoid viewing a very bright object (such as light fittings) for an extended period. Avoid operating or storing the unit in the following locations.

- Extremely hot or cold places (operating temperature –10°C to +50°C; 14°F to 122°F, however, we recommend that the unit be used within a temperature range of –5°C to +40°C; 23°F to 104°F)
- Damp or dusty places
- Where it is exposed to rain
- Where it is subject to strong vibration
- Close to generators of powerful electromagnetic radiation such as radio or TV transmitters.

A



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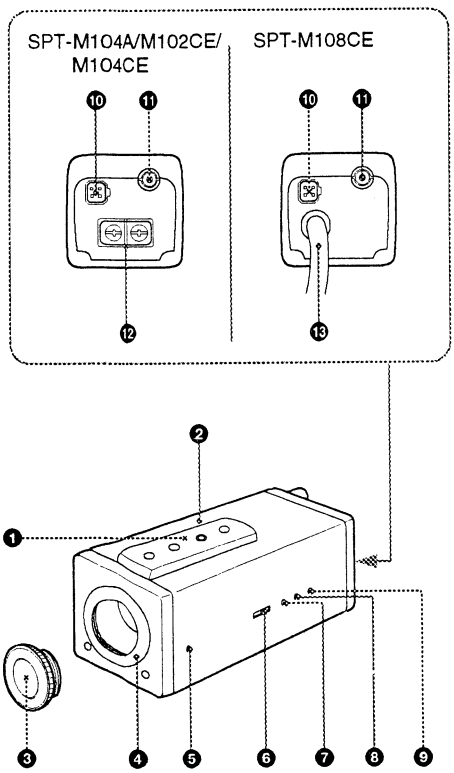

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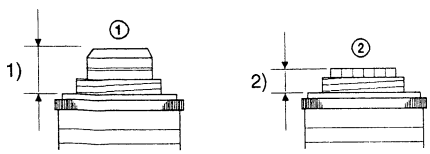


Handling of the lens

As the lens could be damaged if not attached properly, make sure to see the section "Attaching the Lens" before attaching it.

Care of the unit

- Remove dust or dirt on the surface of the lens or CCD with a blower.
- Use a dry soft cloth to clean the body. If it is very dirty, use a cloth dampened with a small quantity of neutral detergent, then wipe dry.
- Avoid the use of volatile solvents such as thinners, alcohol, benzene, and insecticides. They may damage the surface finish and/or impair the operation of the camera.

In the event of any problems with the operation of the camera, contact your Sony service representative.

CCD-IRIS Function — Illustration A

When using a manual iris lens, set the CCD-IRIS switch to "ON" to automatically adjust the sensitivity according to the incident light conditions. When using an auto-iris lens, set this switch to "OFF."

CCD Characteristics

The following conditions that may be observed when using a CCD camera are not associated with any fault of the camera.

Vertical smear

This phenomenon occurs when viewing a very bright object.
To obtain the optimum picture, close the manual iris control.

Patterned noise

This is a fixed pattern which may appear over the entire monitor screen when operating the camera at a high temperature.

Jagged picture

When viewing stripes, straight lines, or similar patterns, the image on the screen may appear jagged.

Location and Function of Parts — B

❶ Tripod adaptor
This adaptor can also be attached on the bottom of the camera.

Note on SPT-M102CE/M104CE/M108CE
At the factory, the tripod adaptor ❶ supplied with SPT-M102CE/M104CE/M108CE is attached on the bottom of the unit.

❷ Camera mounting receptacle (1/4" UNC-20)
❸ Lens mount cap
❹ Lens mount (C/CS mount)
❺ C/CS adjustment screw
❻ CCD-IRIS switch
❼ LEVEL adjustment screw
❽ BLC (Back Light Control) adjustment screw
❾ V-PHASE adjustment screw (SPT-M104A/M104CE/M108CE only)
❿ LENS connector (4-pin)
⓫ Video output (BNC-type)
Connect to the VIDEO IN connector of a monitor.
⓬ SPT-M104A/M104CE: AC 24 V screw terminals
Connect to an external power supply of AC 24 V.
SPT-M102CE: DC IN 12 V screw terminals
Connect to an external power supply of DC 12 V.
⓭ Mains lead (SPT-M108CE only)
Connect to an AC power supply of 220 to 240 V.

Installation

Install the camera where it will not be affected by fluorescent lights or window reflections. If the camera is used under illumination that is not steady, the picture may flicker.

Attaching the Lens

Usable lenses C

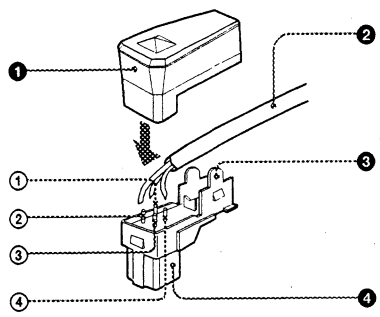
- Any C mount lens with a projection of 12 mm (1/2 inch) or less from the lens mount
- Any CS mount lens
- Weighing less than 1 kg (2 lb 3 oz)

When using an auto-iris lens, use only a DC-driven type, or a direct current drive coil with a resistance value of over 150 Ω.

①	C mount lens	1)	12 mm (1/2 inch) or less
②	CS mount lens	2)	7 mm (9/32 inch)

Note
Be sure to attach the lens mount cap when the lens is not mounted.

D



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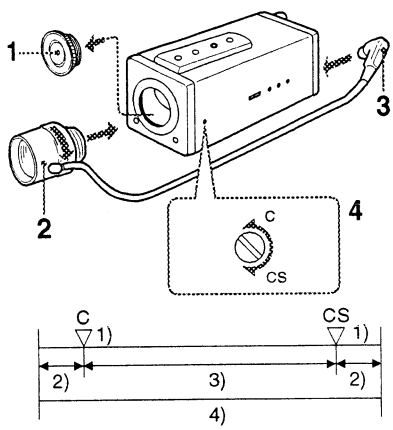

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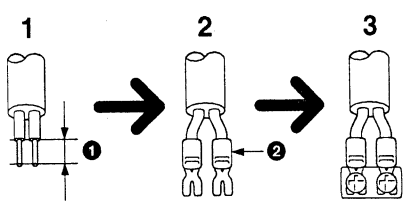

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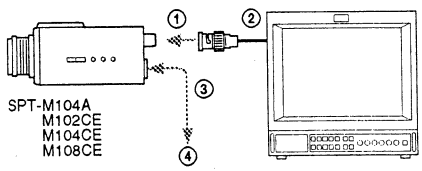


Plug fitting for an auto-iris lens D

The camera is supplied with a plug to fit the LENS connector. To connect an auto-iris lens, first replace the plug on the lens cable with the supplied plug.

❶ Connector cover (supplied)
❷ Lens cable
❸ Rib (Cut off if the lens cable is too thick.)
❹ Lens plug (supplied)

1 Solder the lens cable wires to the pins on the supplied plug; apply heat after putting heat shrink sleeving on the wires.
The pin assignment is as follows.

	Pin	Signal
①	3	Drive (+)
②	1	Control (–)
③	2	Control (+)
④	4	Drive (–) (GND)

Refer to the operation manual for the lens to determine the cable color coding.

2 Put the cover on the plug.

Fitting the lens E

When using an auto-iris lens, attach it as follows. For a manual lens, omit step **3**.

1 Unscrew the lens mount cap.
2 Screw in the lens.
3 First, replace the plug on the lens cable with the plug supplied with the camera. Then, connect the camera cable plug to the LENS connector.
4 According to the type of lens, C (C-mount lens) or CS (CS-mount lens), to adjust the back focus, turn the C/CS adjustment screw with a screwdriver.

1) Standard position
2) 0.75 mm
3) 5.0 mm
4) Adjustable range of back focus

Connections

Power connection

SPT-M104A/M102CE/M104CE: F

1 Remove the insulation on the power cable as illustrated.
2 Attach the terminal tips.
3 SPT-M104A/M104CE: Connect to the AC 24 V terminals on the camera.
SPT-M102CE: Connect to the DC 12 V terminals on the camera.

❶ Lead length required for connecting the terminals
❷ Tip

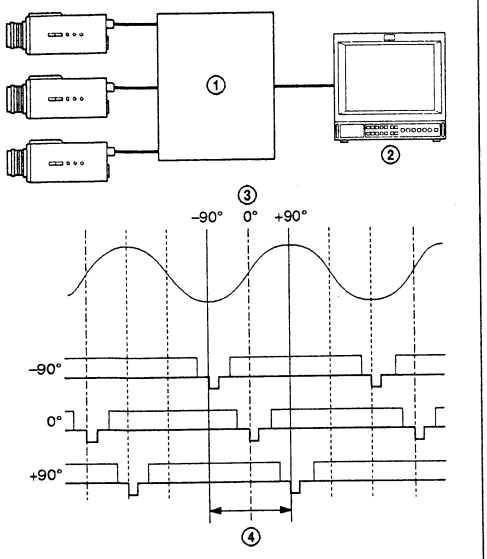
SPT-M108CE:
Plug the mains lead into a 220 to 240 V AC power outlet.

Connecting the monitor G

① to VIDEO OUT
② to video input on the monitor
③ SPT-M104A: to AC 24 V, 60 Hz
SPT-M102CE: to DC 12 V
SPT-M104CE: to AC 24 V, 50 Hz
SPT-M108CE: to AC 220–240 V, 50 Hz
④ Power cord

Note on SPT-M104A/M104CE
To get the optimum performance from the unit, be sure to connect to an AC supply of 24 V $^{+10}_{-5}$%.

H



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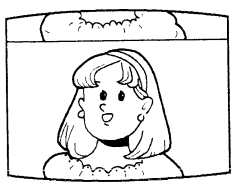

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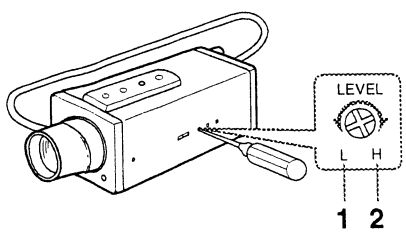


AC Line Lock Adjustment (SPT-M104A/M104CE/M108CE) H

The vertical sync phase can be manually adjusted within the range of approximately –90° to +90°.
① Camera switcher
② Monitor
③ Vertical phase
④ Adjustable range

Note
When the AC line leads are connected with opposite polarity, the vertical sync phase moves 180°.

Vertical sync is unlocked. I (Blanking bar appears when switching from one picture to another.)
Adjust AC line lock.

How to adjust

Turn the V-PHASE adjustment screw with a screwdriver so that the vertical sync phase of each unit is locked to a certain AC line phase. In the locked condition, the picture will not roll up/down during switching of pictures.

Adjusting the Incident Light Level J

Since the incident light level has been preset at the factory, usually no further adjustment is required.
If the picture is too dark, however, or if the picture's highlights are extremely overexposed, adjust the LEVEL adjustment screw with a screwdriver. This adjustment can only be used for auto-iris lenses or CCD-IRIS control.

1 Turn toward **L** (low) to make the picture darker.
2 Turn toward **H** (high) to make the picture brighter.

Adjusting the Back Light Control

You can compensate for backlight conditions by turning the BLC (Back Light Control) screw.
When using this unit under backlight conditions, turn the BLC screw towards AV.

Specifications

Image device	1/3" interline transfer type CCD (Hyper HAD™ sensor, Charge Coupled Device)
Picture elements	SPT-M104A: 250,000: 510 × 492 (horizontal × vertical) SPT-M102CE/M104CE/M108CE: 290,000: 500 × 582 (horizontal × vertical)
Sensing area	3.3 mm × 4.4 mm
Signal system	SPT-M104A: EIA standards SPT-M102CE/M104CE/M108CE: CCIR standards
Sync system	AC line lock (SPT-M104A/M104CE/M108CE)
Horizontal resolution	Approx. 380 lines (at centre of screen)
Lens mount	C/CS mount
Minimum illumination	0.1 lux (F1.2)
S/N	45 dB (AGC off)
Automatic control	Electronic iris (exposure priority, up to 1/100000 sec linear shutter speed control) AGC (Automatic Gain Control)
Power requirements	SPT-M104A: AC 24 V, 60 Hz, screw terminal SPT-M102CE: DC 12 V, screw terminals SPT-M104CE: AC 24 V, 50 Hz, screw terminals SPT-M108CE: AC 220 to 240 V, 50 Hz, power cable (plug not supplied)
Video output	BNC-type, unbalanced, 1.0 Vp-p, 75 ohms
Lens connector	4-pin connector *See below for pin assignment.*

Pin	Signal
1	Control (–)
2	Control (+)
3	Drive (+)
4	Drive (–) (GND)

** For DC-driven type lenses only.*

Power consumption	SPT-M104A/M104CE: Approx. 4.5 W SPT-M102CE: DC 12 V, 0.2A SPT-M108CE: Approx. 6.0 W
Operating temperature	–10°C to +50°C (14°F to 122°F)
Humidity	20 to 80%
Storage temperature	–40°C to +60°C (–40°F to 140°F)
Acceptable lens mass	Approx. 1 kg (2 lb 3 oz) max.
Tripod receptacle	1/4" UNC-20
Dimensions (w/h/d)	SPT-M104A/M104CE: Approx. 53 × 50 × 123 mm (2 1/8 × 2 × 4 7/8 inches) excl. projecting parts SPT-M102CE: Approx. 53 × 50 × 125 mm (2 1/8 × 2 × 5 inches) excl. projecting parts SPT-M108CE: Approx. 53 × 50 × 170 mm (2 1/8 × 2 × 6 3/4 inches) excl. projecting parts
Mass	SPT-M104A/M102CE/M104CE: Approx. 350 g (12 oz) SPT-M108CE: Approx. 700 g (1 lb 9 oz)
Supplied accessories	Lens mount cap (1) 4-pin cable plug for auto-iris lens connector (1) Operating Instructions (1)

Design and specifications are subject to change without notice.

SECTION 2
ELECTRICAL ADJUSTMENTS

Required Instrument :

- Digital multimeter
- Oscilloscope
- Gray scale with white center ($\gamma=1$)
- Monitor TV

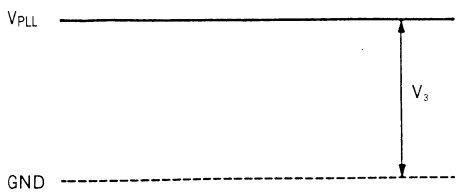
Power Supply : 24V AC/50Hz

DC-DC Converter Adjustment

1. Remove the shield case on the B board.
2. Connect digital multimeter to CN302-4pin (+5V) on the B board (side B).
3. Adjust RV302 so that the voltage is 5.0±0.1V.
4. At this time, verify that CN302-2pin (−9V) is −9±0.3V and CN302-3pin (+15V) is 15±0.3V.

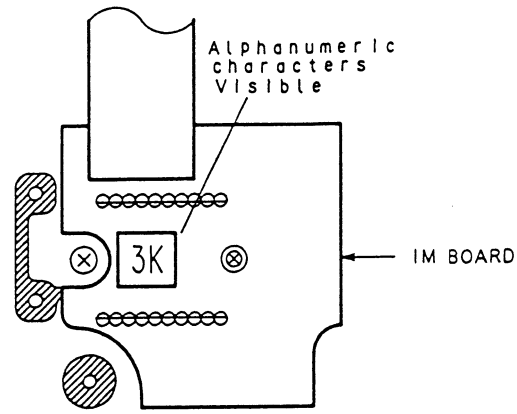
V_{PLL} Adjustment

1. Connect oscilloscope to TP3 on the A board (side A).
2. Adjust CT201 so that V_3 is at 3.0±0.2V.



V_{SUB} Adjustment

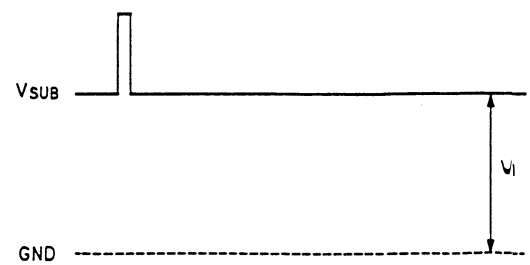
1. Take note of the alphanumeric characters visible in the square hole at back of the IM board.



2. Connect oscilloscope to TP1 on the A board (side A).
3. Adjust RV201 so that the value of V_1 conforms to the corresponding value shown in the following voltage table.

Example : 3K

V_{SUB} code	E	f	G	h	J	K	L	m	N	P	
Specified value	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	(V)
V_{SUB} code	Q	R	S	T	U	V	W	X	Y	Z	
Specified value	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	(V)

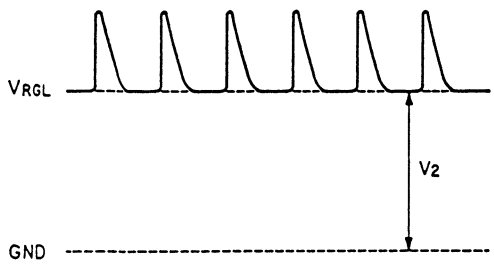


V_{RGL} Adjustment

1. Connect oscilloscope to TP2 on the A board (side A).
2. Adjust RV202 so that the value of V_2 conforms to the corresponding value shown in the following voltage table.

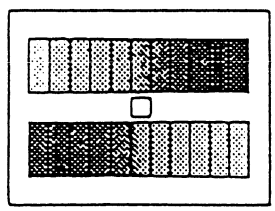
Example : 3K

V_{RGL} code	1	2	3	4	5	6	7	
Specified value	1.0	1.5	2.0	2.5	3.0	3.5	4.0	(V)



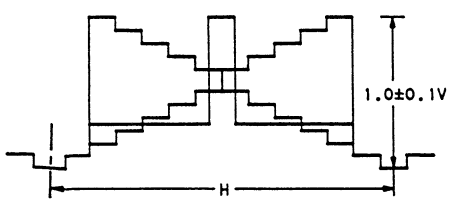
AGC Adjustment

1. Set gray scale (γ=1) to the pattern box.



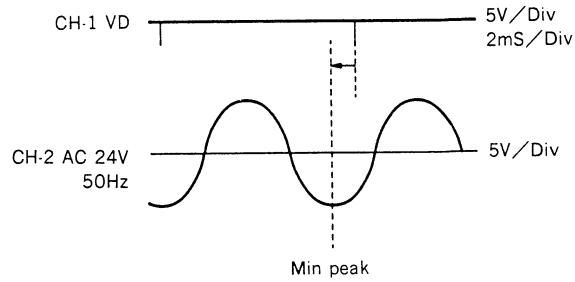
Gray scale pattern

2. Connect monitor TV and oscilloscope to VIDEO OUT of the set. Turn off the CCD IRIS switch and allow gray scale to be displayed on the full monitor TV screen. (Iris of lens : F=16)
3. Adjust RV203 so that the waveform is within the voltage range of 1.0±0.1V.
   The top of the staircase should not be crushed.

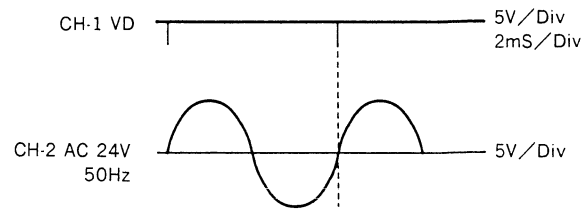


V_{PHASE} Adjustment

1. Connect CH-1 of oscilloscope to CN302-6pin (VD) and CN302-1pin (GND) on the B board (side B), and CH-2 to CN301 (AC 24V) on the B board (side B).
2. Turn RV301 full counterclockwise and make sure that the Min peak of the AC 24V peak is positioned at the left side of the CH-1 pulse.

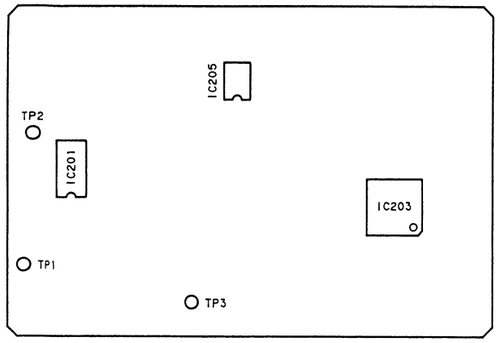


3. Turn RV301 and adjust so that the CH-1 pulse is positioned at the zero cross point of the CH-2 (AC 24V) waveform.

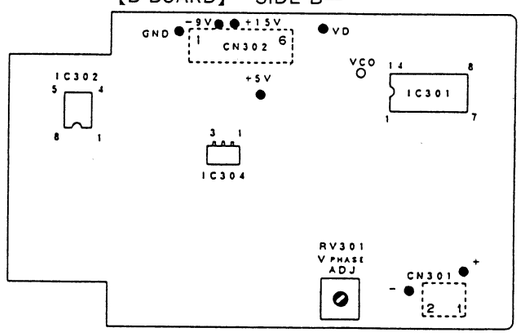


Adjustment Location :

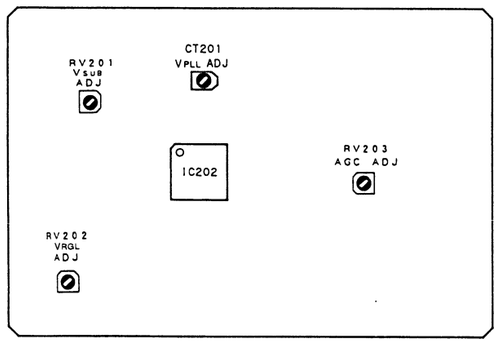
【A BOARD】 —SIDE A—



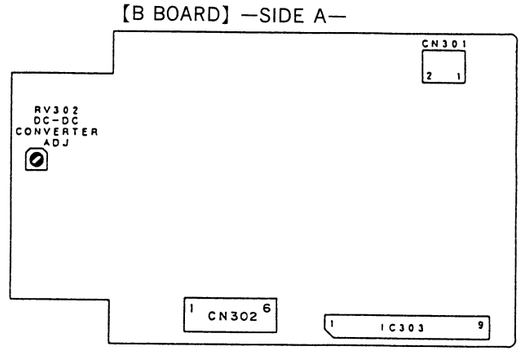
【B BOARD】 —SIDE B—



【A BOARD】 —SIDE B—

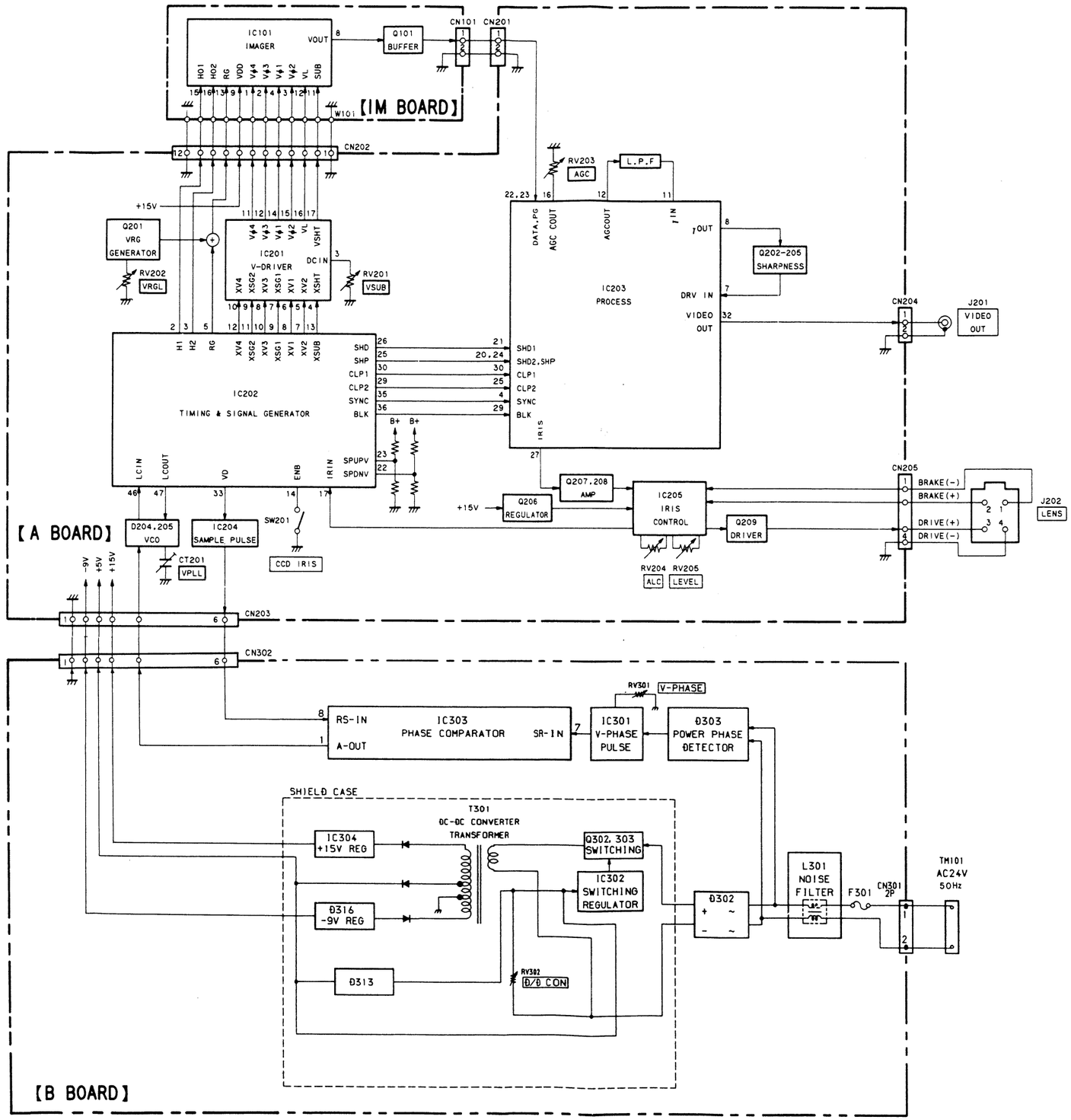


【B BOARD】 —SIDE A—



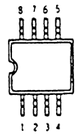
SECTION 3
DIAGRAMS

3-1. BLOCK DIAGRAM



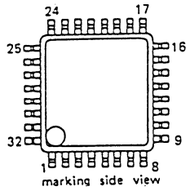
3-2. SEMICONDUCTOR LEAD LAYOUTS

LM358DR-E2
LM358D
TL5001CD
TL5001CD-E2



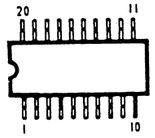
(TOP VIEW)

CXA1310AQ
CXA1310AQ-T4



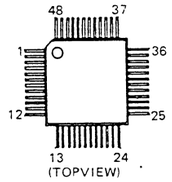
marking side view

CXD1267AN-T4



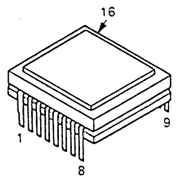
(TOP VIEW)

CXD2400R-T4

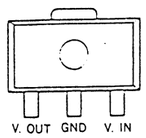


(TOPVIEW)

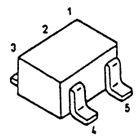
ICX055AL-A



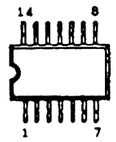
NJM78L15UA
NJM78L15UA-TE1



TC7S04F (TE85R)
SC7S04F

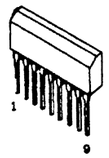


SN74HC132ANS
SN74HC132ANS-E05

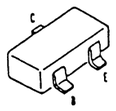


(TOP VIEW)

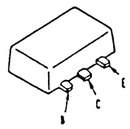
TC5081AP



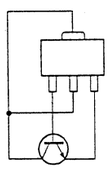
DTC114TK-T146
DTC114TKA-T146
2SA1162G
2SA1162G-TE85L
2SC2712L-TE85L
2SC2712-YG



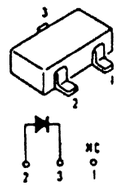
2SA1419S
2SA1419S-TD



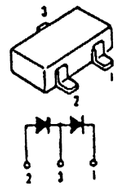
2SC3649-S-TD
2SD1615A-GP



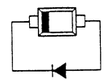
1SS220-T1
RD9.1M-B1
RD9.1M-T1B
RD20M-B
RD20M-T1B
RD39M-B
RD39M-T1B
SB05-05CP
SB05-05CP-TB



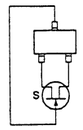
1SS226
MA153-TX



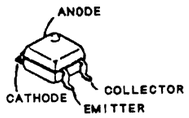
1T363
1T363A-M20-T8A



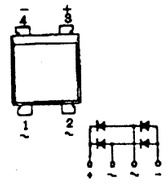
2SK711-BL
2SK711-BL/V-TE85L



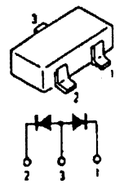
NJL5151MB
NJL5151MB-T1



U05G4B48
U05G4B48-TL

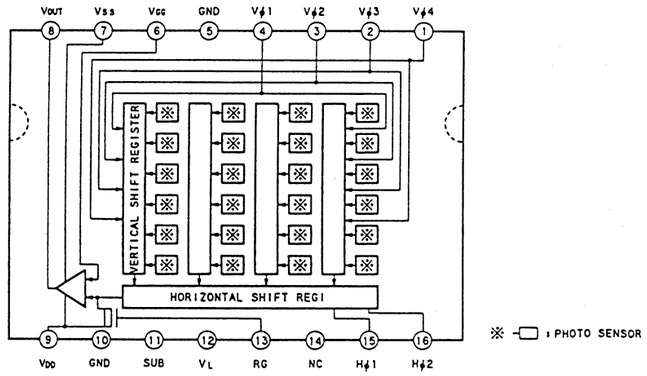


MA152WA
MA152WA-TX

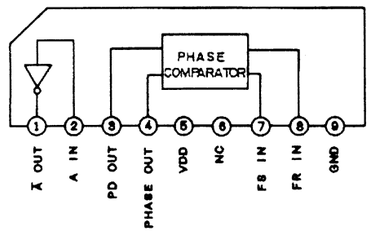


• IC Block Diagrams

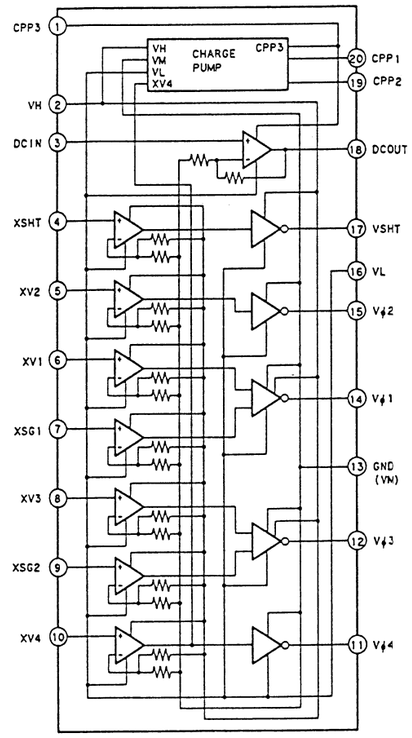
IC101 ICX055AL-A



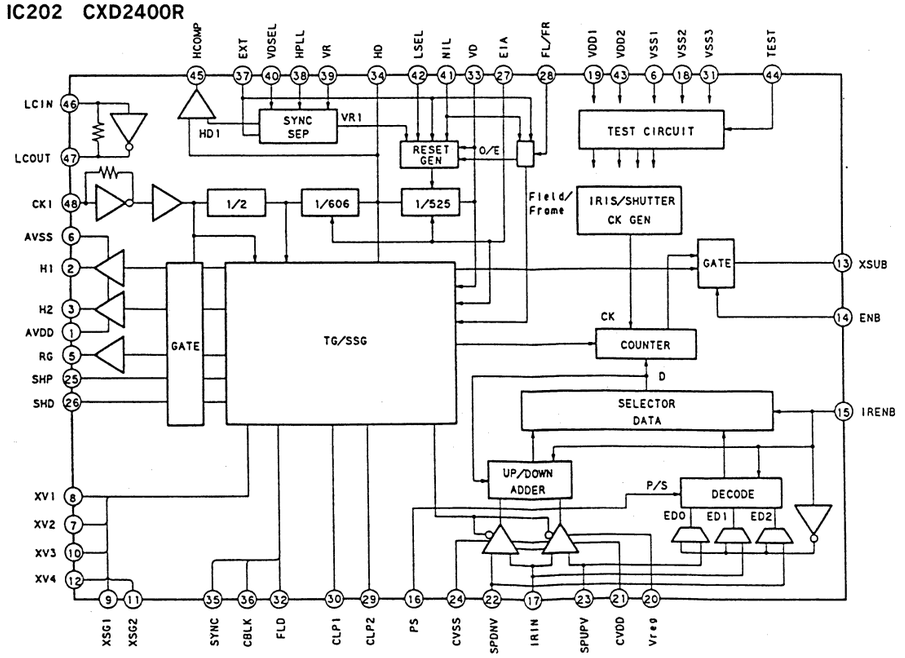
IC303 TC5081AP



IC201 CXD1267AN

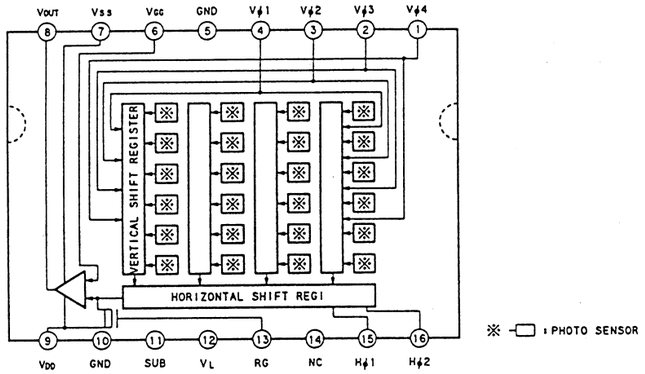


IC202 CXD2400R

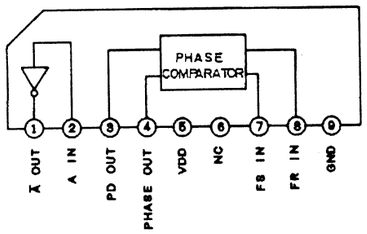


• IC Block Diagrams

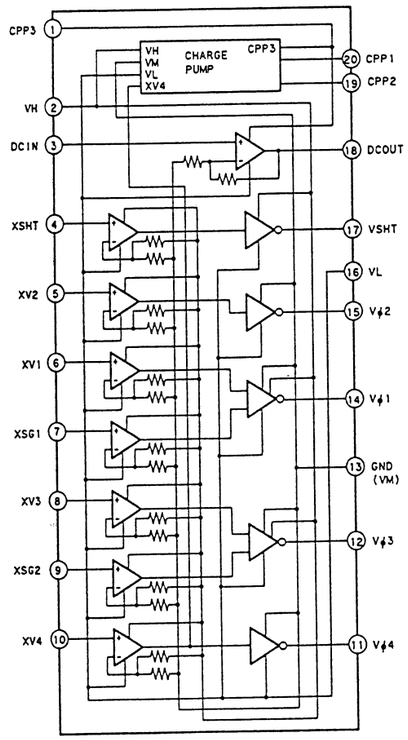
IC101 ICX055AL-A



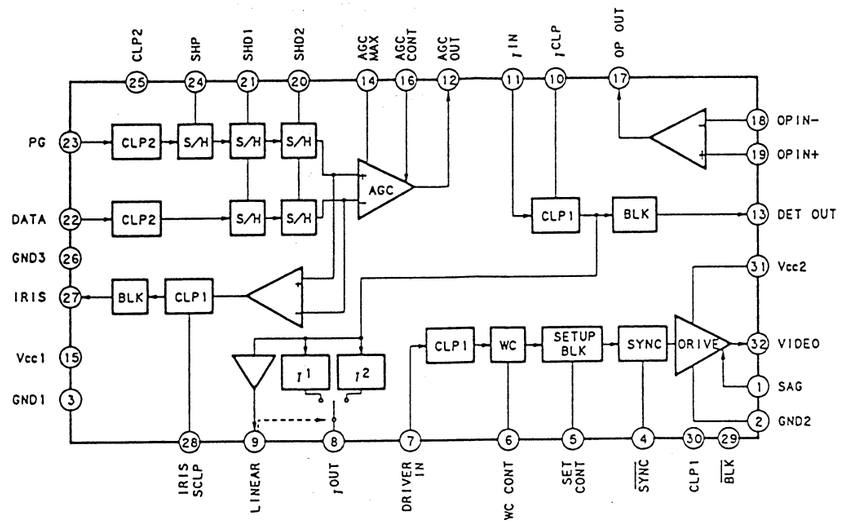
IC303 TC5081AP



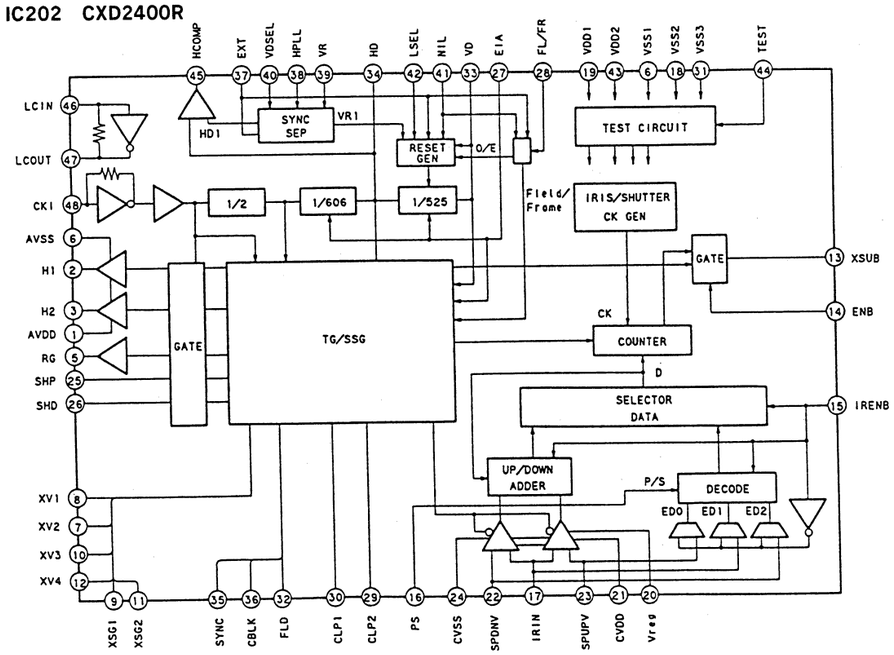
IC201 CXD1267AN



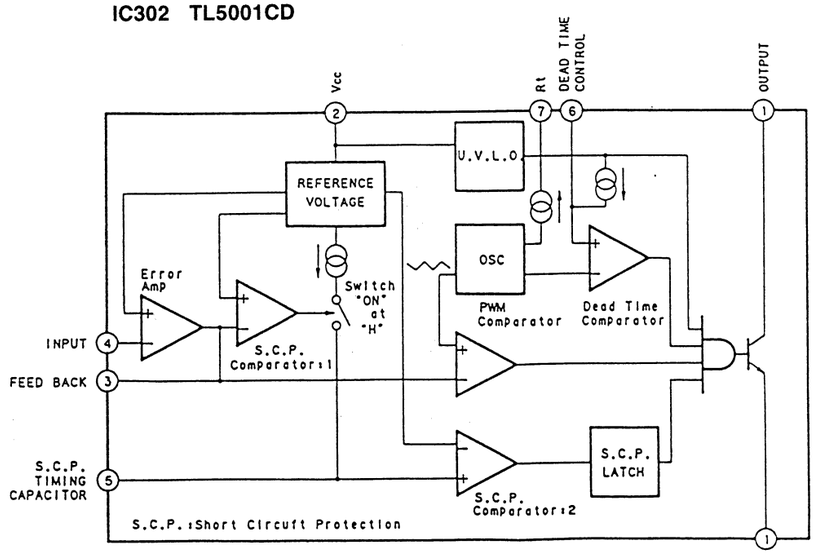
IC203 CXA1310AQ



IC202 CXD2400R



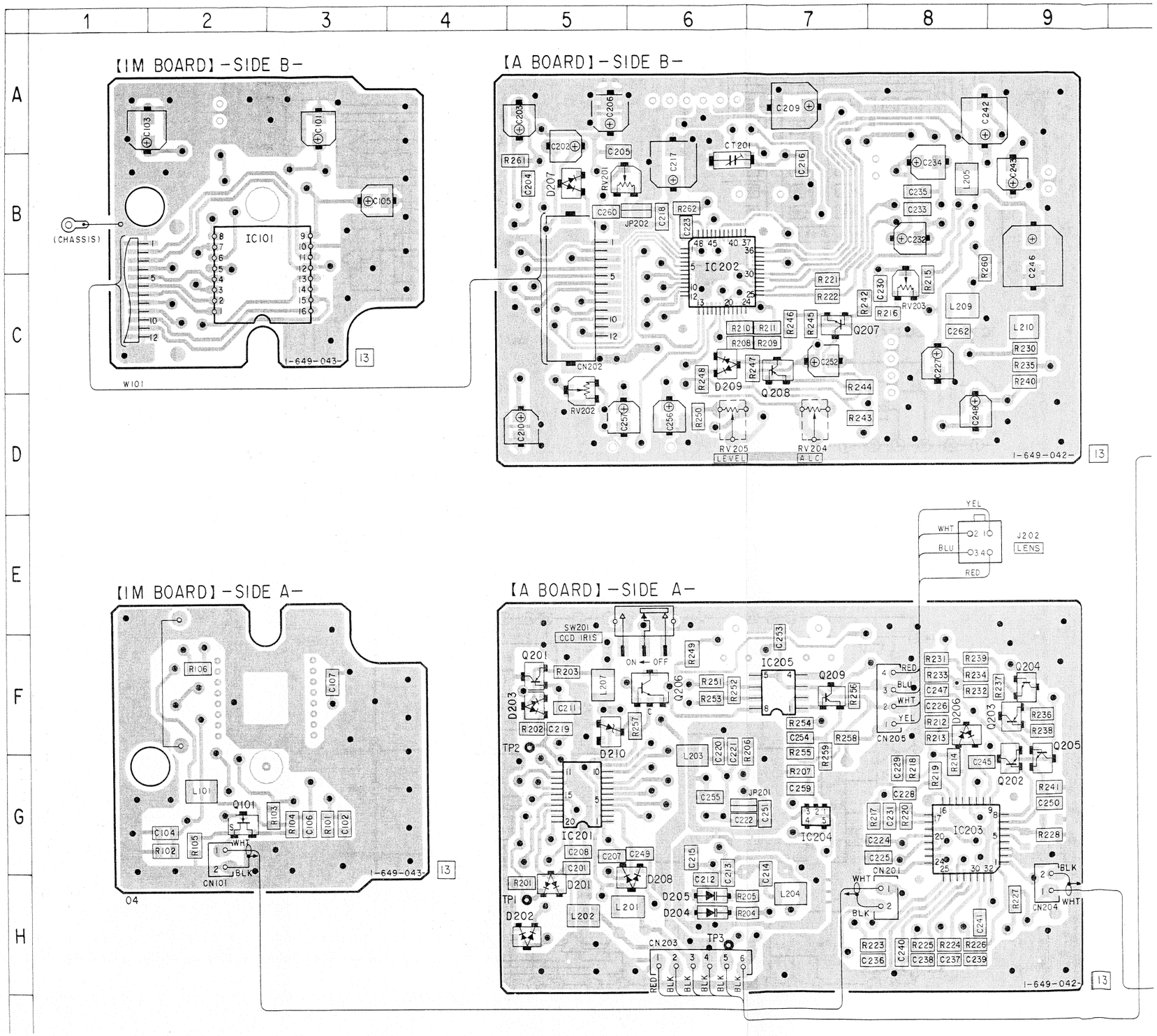
IC302 TL5001CD



3-3. PRINTED WIRING BOARDS

● Semiconductor Location

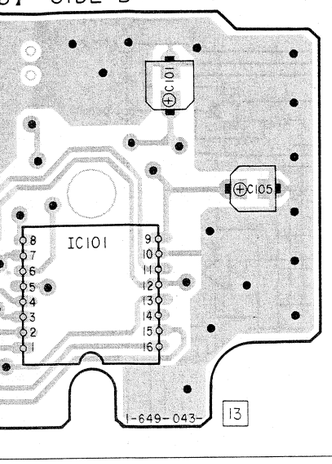
Ref. No.	Location
D201	H-5
D202	H-5
D203	F-5
D204	H-6
D205	H-6
D206	F-8
D207	B-5
D208	G-5
D209	C-6
D210	F-5
D301	B-13
D302	B-13
D303	B-13
D305	B-13
D306	B-11
D307	G-11
D308	B-11
D309	G-11
D310	G-11
D311	C-11
D312	C-11
D313	G-11
D314	B-11
D315	B-11
D316	B-11
D317	G-12
D318	G-12
IC101	B-2
IC201	G-5
IC202	B-6
IC203	G-8
IC204	G-7
IC205	F-7
IC301	A-13
IC302	B-10
IC303	A-13
IC304	B-12
Q101	G-2
Q201	F-5
Q202	G-9
Q203	F-9
Q204	F-9
Q205	F-9
Q206	F-6
Q207	C-8
Q208	C-8
Q209	F-7
Q301	A-10
Q302	G-10
Q303	G-10



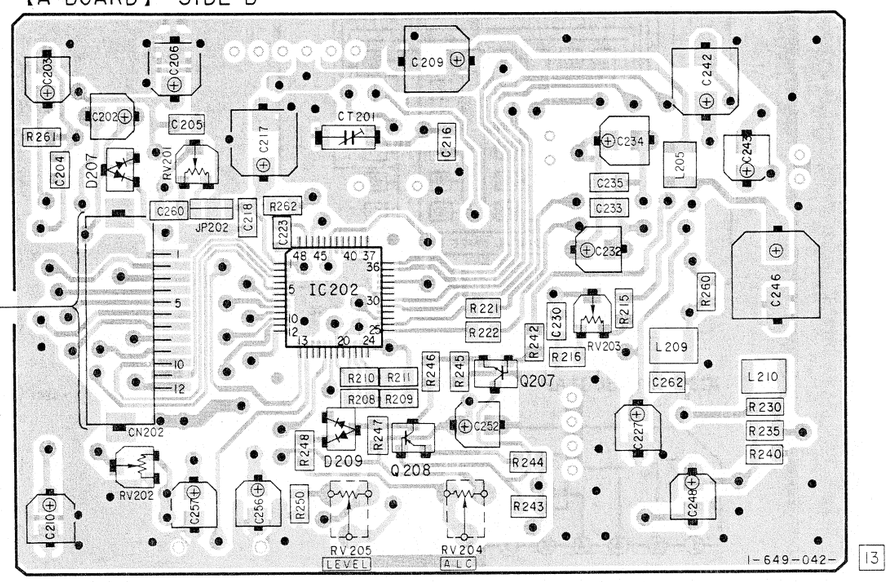
DS

2 3 4 5 6 7 8 9 10 11 12 13 14 15

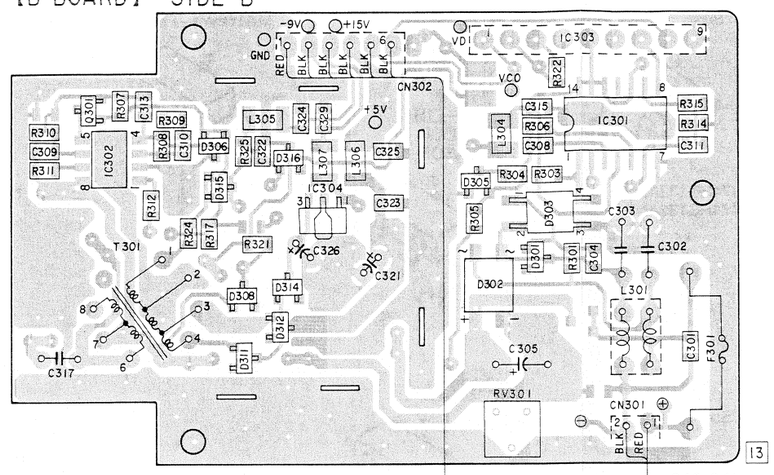
D]-SIDE B-

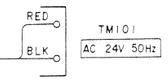


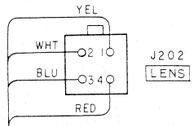
【A BOARD】-SIDE B-



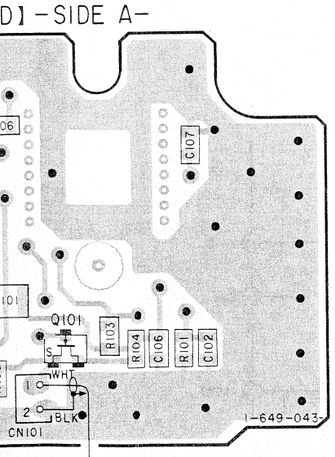
【B BOARD】-SIDE B-



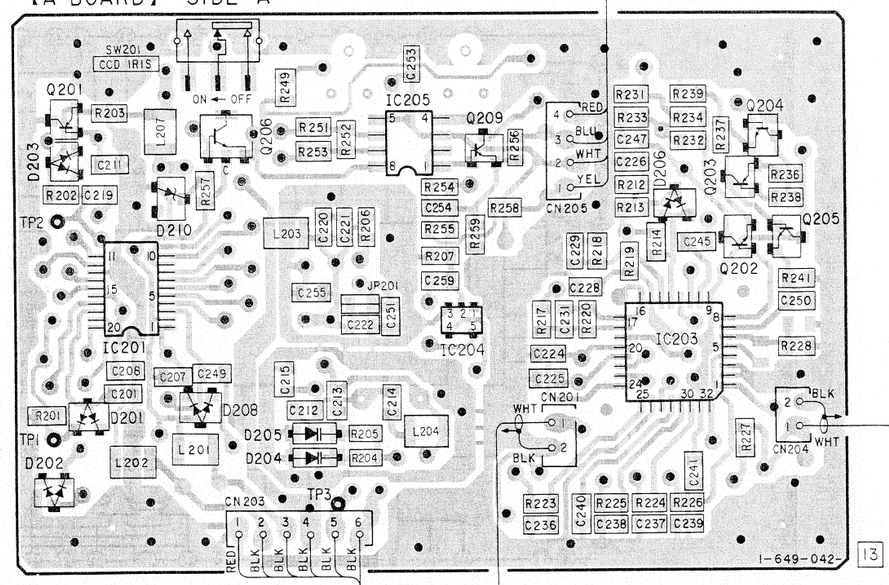




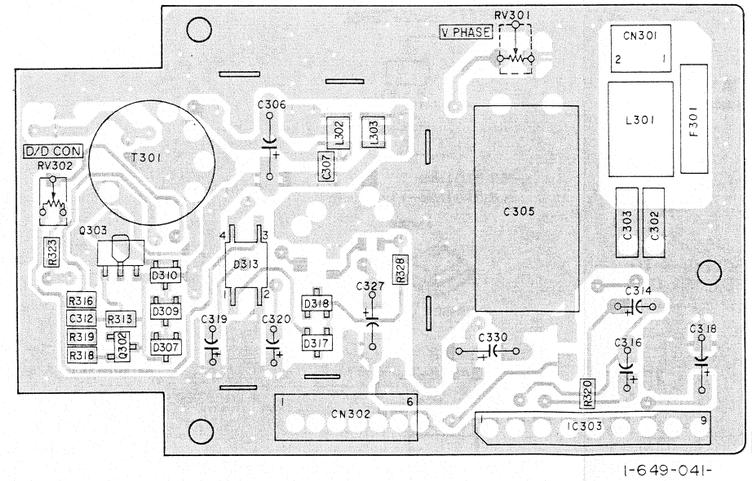
D]-SIDE A-

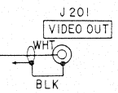


【A BOARD】-SIDE A-

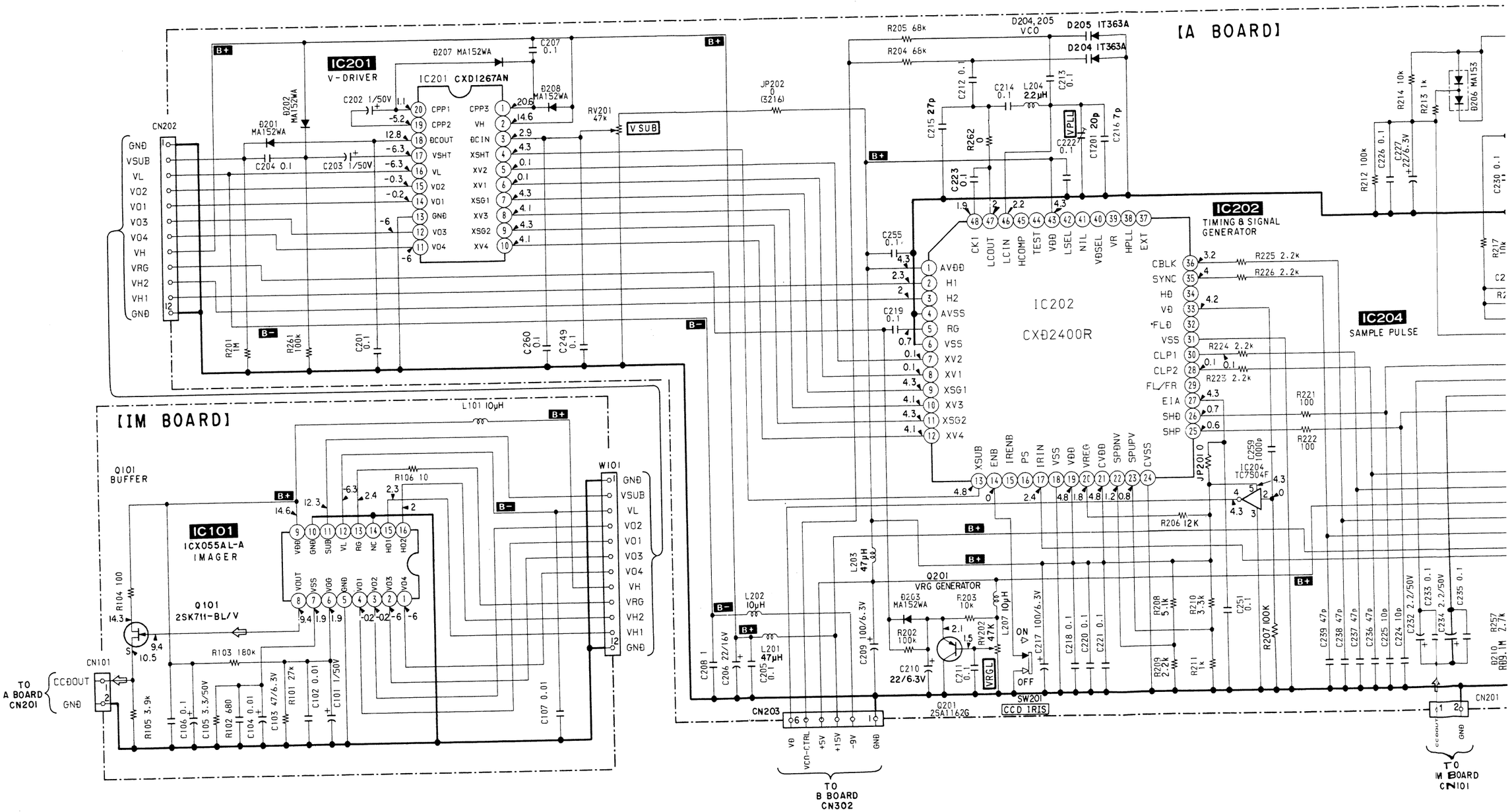


【B BOARD】-SIDE A-

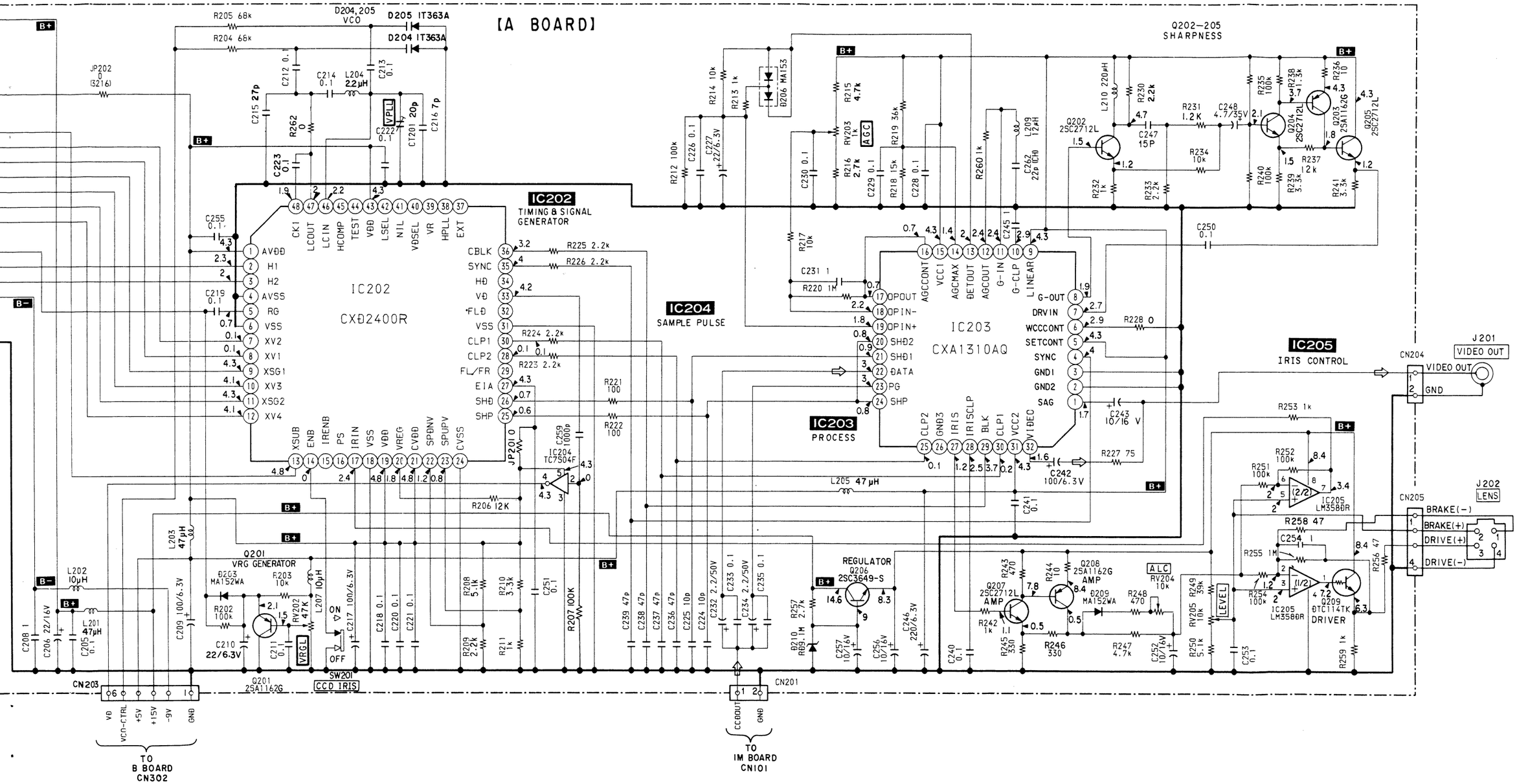




3-4. SCHEMATIC DIAGRAM



SPT-M104CE


[A BOARD]
IC202
TIMING & SIGNAL GENERATOR
IC202
CXD2400R
IC203
CXA1310AQ
IC204
SAMPLE PULSE
IC203
PROCESS
IC205
IRIS CONTROL
Q202–205
SHARPNESS
Q201
VRG GENERATOR
REGULATOR
Q206 2SC3649-S
Q207 2SC2712L AMP
Q208 2SA1162G AMP
Q209 DTC114TK DRIVER
IC204 TC7S04F
IC205 LM358DR
D204,205 VCO
D205 IT363A
D204 IT363A
D206 MA153
D203 MA152WA
D209 MA152WA
Q202 2SC2712L
Q204 2SC2712L
Q203 2SA1626
Q205 2SC2712L
Q201 2SA1162G
SW201 CCD IRIS
CN203
CN201
CN204
CN205
J201 VIDEO OUT
J202 LENS
TO B BOARD CN302
TO IM BOARD CN101

1

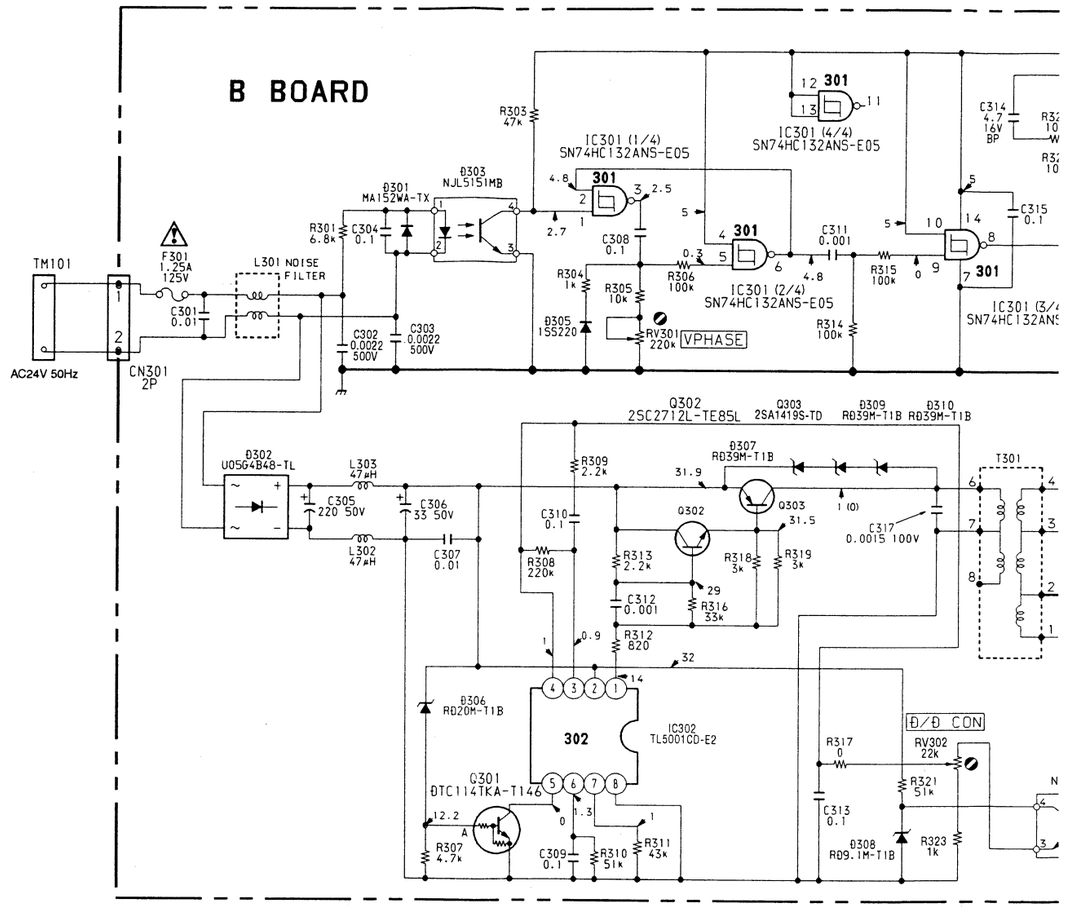
2

3

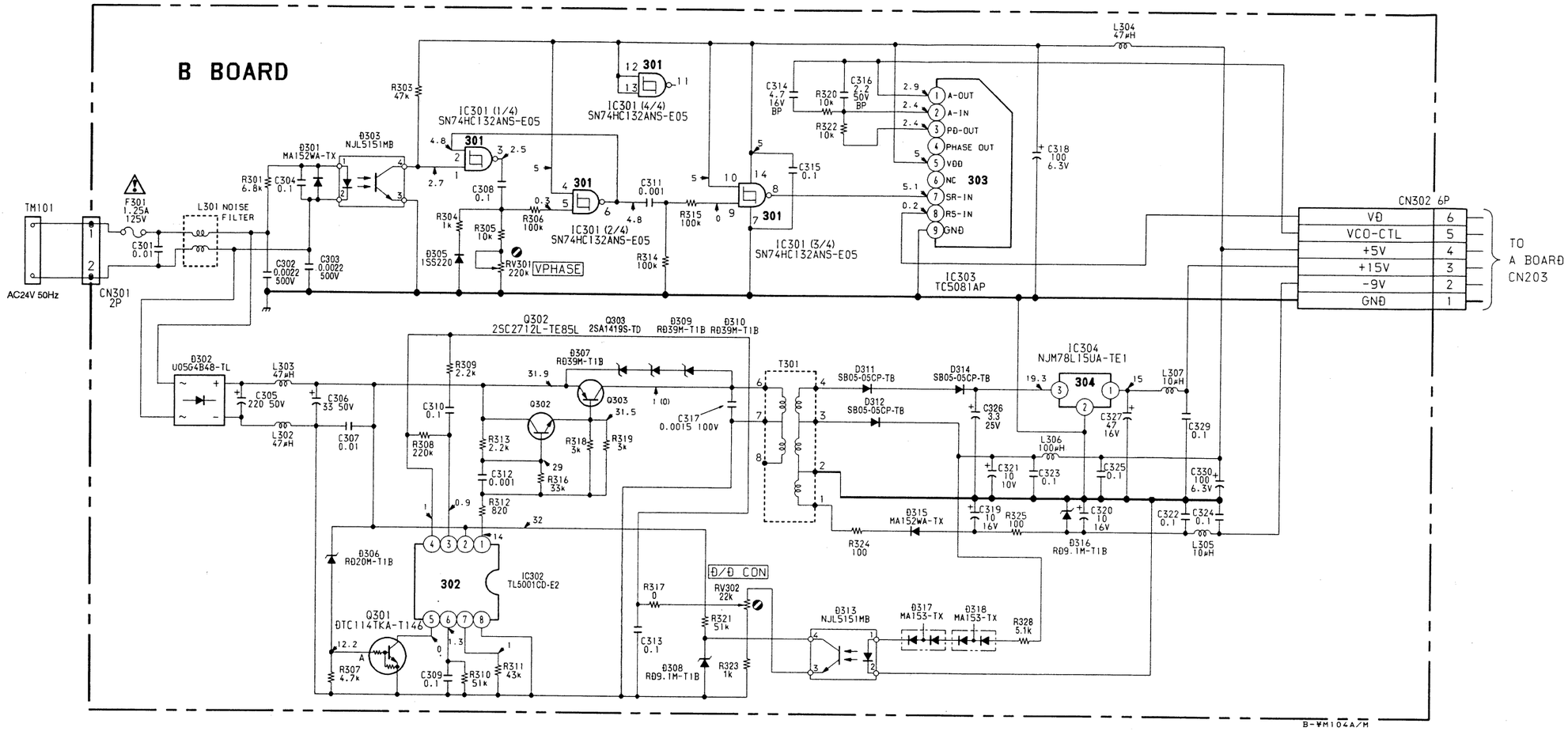
4

5

B BOARD



A B C D E F G H


B BOARD
TM101
AC24V 50Hz
F301 1.25A 125V
CN301 2P
L301 NOISE FILTER
C301 0.01
C302 0.0022 500V
C303 0.0022 500V
Đ301 MA152WA-TX
Đ303 NJL5151MB
R301 6.8k
C304 0.1
R303 47k
IC301 (1/4) SN74HC132ANS-E05
IC301 (2/4) SN74HC132ANS-E05
IC301 (3/4) SN74HC132ANS-E05
IC301 (4/4) SN74HC132ANS-E05
C308 0.1
R304 1k
R305 10k
Đ305 1SS220
R306 100k
RV301 220k VPHASE
C311 0.001
R314 100k
R315 100k
C314 4.7 16V BP
R320 10k
C316 2.2 50V BP
R322 10k
C315 0.1
C318 100 6.3V
L304 47μH
IC303 TC5081AP
A-OUT
A-IN
PD-OUT
PHASE OUT
VDD
NC
SR-IN
RS-IN
GND
CN302 6P
VĐ 6
VCO-CTL 5
+5V 4
+15V 3
-9V 2
GNĐ 1
TO A BOARĐ CN203
Q302 2SC2712L-TE85L
Q303 2SA1419S-TD
Đ309 RĐ39M-T1B
Đ310 RĐ39M-T1B
Đ307 RĐ39M-T1B
Đ302 U05G4B48-TL
L303 47μH
L302 47μH
C305 220 50V
C306 33 50V
C307 0.01
R309 2.2k
C310 0.1
R308 220k
R313 2.2k
C312 0.001
R316 33k
R318 3k
R319 5k
C317 0.0015 100V
T301
Đ311 SB05-05CP-TB
Đ312 SB05-05CP-TB
Đ314 SB05-05CP-TB
IC304 NJM78L15UA-TE1
C326 3.3 25V
C327 47 16V
L307 10μH
C329 0.1
L306 100μH
C321 10 10V
C323 0.1
C325 0.1
C330 100 6.3V
C319 10 16V
R325 100
C320 10 16V
C322 0.1
C324 0.1
L305 10μH
Đ315 MA152WA-TX
R324 100
Đ316 RĐ9.1M-T1B
Đ306 RĐ20M-T1B
IC302 TL5001CD-E2
Q301 ĐTC114TKA-T146
R307 4.7k
C309 0.1
R310 51k
R311 43k
Đ/Đ CON
RV302 22k
R317 0
C313 0.1
R321 51k
Đ308 RĐ9.1M-T1B
R323 1k
Đ313 NJL5151MB
Đ317 MA153-TX
Đ318 MA153-TX
R328 5.1k

B-WM104A/M

SECTION 4
REPAIR PARTS

【NOTE】

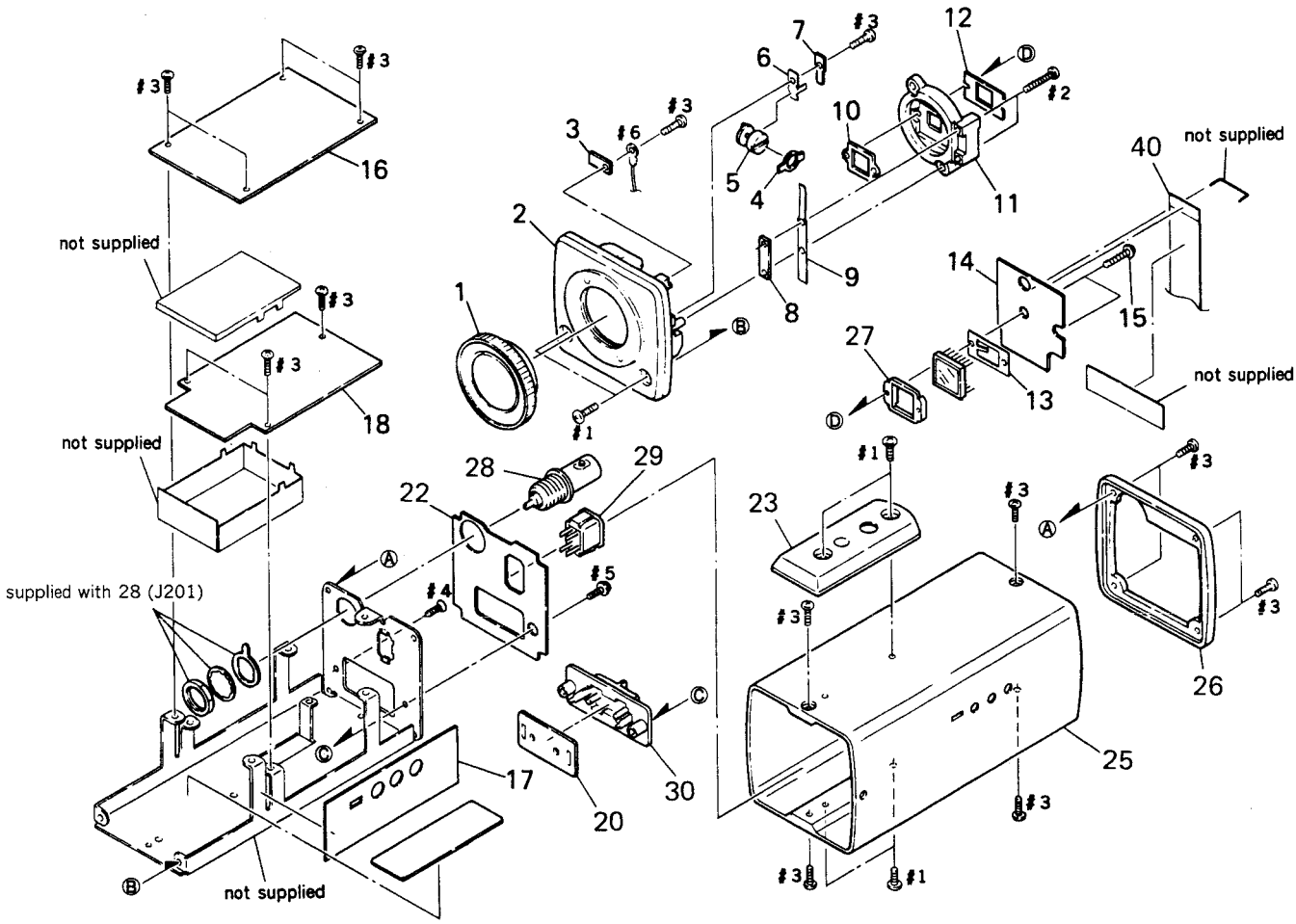
· Items with no part number and no description are not stocked because they are seldom required for routine service.

· All resistors are in ohms.

· Items marked "o" in the SP column are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by mark ⚠ are critical for safety. Replace only with part number specified.

4-1. EXPLODED VIEW



No.	Part No.	SP	Description
1	2-042-385-00	s	CAP, C MOUNT
2	X-4030-473-1	s	PANEL ASSY, FRONT
3	4-036-918-01	s	RETAINER (SPRING)
4	4-037-809-01	o	PACKING, SEAL
5	4-036-913-01	s	ROTOR (ECCENTRIC)
6	4-036-925-01	s	SPRING, U
7	4-036-922-01	o	RETAINER
8	4-036-914-01	o	RETAINER, SPRING
9	4-036-921-01	s	SPRING, LEAF
10	4-036-916-01	o	PLATE, STANDARD, IMAGER
11	4-036-924-01	s	BRACKET, IMAGER
12	4-036-911-01	s	SHEET, PROTECTION, IMAGER
13	4-040-220-01	o	SPACER
14	A-3016-430-A	o	PC BOARD ASSY, IM MAIN
15	3-703-925-01	s	SCREW (M1.4X7)
16	A-3016-432-A	o	PC BOARD ASSY, A MAIN
17	4-040-685-01	o	PLATE, LIGHT INTERCEPTION
18	A-8277-135-A	o	B COMPLETE PCB (N)
20	4-036-927-01	o	SHEET, COVER
22	4-040-216-11	o	LABEL, BACK PANEL
23	A-3042-217-A	s	PLATE ASSY, MOUNT
25	4-040-218-21	s	CASE
26	4-036-923-01	s	PANEL, BACK
27	4-040-219-01	s	FRAME, GUIDE
28	1-562-261-21	o	CONNECTOR, COAXIAL (BNC)
29	1-580-172-11	s	CONNECTOR, MICRO (RECEPTACLE) 4P
30	1-537-243-21	s	TERMINAL BOARD (WITH SCREW)
40	1-751-435-11	s	CABLE, FLAT (1.0MM PITCH)

4-2. ELECTRICAL PARTS LIST

A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-3016-432-A	o	MOUNTED CIRCUIT BOARD, A
C201	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C202	1-126-193-11	s	ELECT 1uF 20% 50V
C203	1-126-193-11	s	ELECT 1uF 20% 50V
C204	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C205	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C206	1-126-395-11	s	ELECT, CHIP 22uF 20% 16V
C207	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C208	1-164-346-11	s	CERAMIC, CHIP 1uF 16V
C209	1-126-206-11	s	ELECT 100uF 20% 6.3V
C210	1-124-778-00	s	ELECT 22uF 20% 6.3V
C211	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C212	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C213	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C214	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C215	1-163-237-11	s	CERAMIC 27PF 5% 50V
C216	1-163-224-11	s	CERAMIC, CHIP 7PF 0.25PF 50V
C217	1-126-206-11	s	ELECT 100uF 20% 6.3V
C218	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C219	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C220	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C221	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C222	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C223	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C224	1-163-093-00	s	CERAMIC, CHIP 10PF 5% 50V
C225	1-163-093-00	s	CERAMIC, CHIP 10PF 5% 50V
C226	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C227	1-124-778-00	s	ELECT 22uF 20% 6.3V
C228	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C229	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C230	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C231	1-164-346-11	s	CERAMIC, CHIP 1uF 16V
C232	1-126-601-11	s	ELECT 2.2uF 20% 50V
C233	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C234	1-126-601-11	s	ELECT 2.2uF 20% 50V
C235	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C236	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C237	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C238	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C239	1-163-109-00	s	CERAMIC, CHIP 47PF 5% 50V
C240	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C241	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C242	1-126-206-11	s	ELECT 100uF 20% 6.3V
C243	1-124-779-00	s	ELECT 10uF 20% 16V
C245	1-164-346-11	s	CERAMIC, CHIP 1uF 16V
C246	1-128-390-11	s	ELECT 220uF 20% 6.3V
C247	1-163-097-00	s	CERAMIC, CHIP 15PF 5% 50V
C248	1-126-603-11	s	ELECT 4.7uF 20% 35V
C249	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C250	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C251	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C252	1-124-779-00	s	ELECT 10uF 20% 16V
C253	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C254	1-164-346-11	s	CERAMIC, CHIP 1uF 16V
C255	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C256	1-124-779-00	s	ELECT 10uF 20% 16V
C257	1-124-779-00	s	ELECT 10uF 20% 16V
C259	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V

(A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C260	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C262	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
CN201	1-564-704-11	o	PIN, CONNECTOR 2P
CN202	1-566-528-11	s	CONNECTOR, 12P
CN204	1-564-704-11	o	PIN, CONNECTOR 2P
CN205	1-564-706-11	o	PIN, CONNECTOR 4P
CT201	1-141-322-11	s	CAP, TRIMMER (CHIP) 5PF
D201	8-719-400-20	s	DIODE MA152WA
D202	8-719-400-20	s	DIODE MA152WA
D203	8-719-400-20	s	DIODE MA152WA
D204	8-719-002-81	s	DIODE 1T363
D205	8-719-002-81	s	DIODE 1T363
D206	8-719-800-76	s	DIODE 1SS226
D207	8-719-400-20	s	DIODE MA152WA
D208	8-719-400-20	s	DIODE MA152WA
D209	8-719-400-20	s	DIODE MA152WA
D210	8-719-106-43	s	DIODE RD9.1M-B1
IC201	8-752-372-14	s	IC CXD1267AN
IC202	8-752-360-91	s	IC CXD2400R
IC203	8-752-051-25	s	IC CXA1310AQ
IC204	8-759-031-84	s	IC SC7S04F
IC205	8-759-998-98	s	IC LM358D
JP201	1-216-295-00	s	METAL, CHIP 0-OHM
JP202	1-216-296-00	s	METAL, CHIP 0-OHM
JP228	1-216-295-00	s	METAL, CHIP 0-OHM
L201	1-412-062-11	s	INDUCTOR, CHIP 47uH
L202	1-412-788-41	s	INDUCTOR 10uH
L203	1-412-062-11	s	INDUCTOR, CHIP 47uH
L204	1-410-373-31	s	INDUCTOR, CHIP 2.2uH
L205	1-412-062-11	s	INDUCTOR, CHIP 47uH
L207	1-412-788-41	s	INDUCTOR 10uH
L209	1-410-382-31	s	INDUCTOR, CHIP 12uH
L210	1-410-658-31	s	INDUCTOR, CHIP 220uH
Q201	8-729-216-22	s	TRANSISTOR 2SA1162
Q202	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q203	8-729-216-22	s	TRANSISTOR 2SA1162
Q204	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q205	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q206	8-729-106-68	s	TRANSISTOR 2SC1615A-GP
Q207	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q208	8-729-216-22	s	TRANSISTOR 2SA1162
Q209	8-729-027-44	s	TRANSISTOR DTC114TKA-T146
R201	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R202	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R203	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R204	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R205	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R206	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R207	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R208	1-216-066-00	s	METAL, CHIP 5.1K 5% 1/10W
R209	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R210	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R211	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R212	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R213	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R214	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R215	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W

(A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R216	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R217	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R218	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R219	1-216-086-00	s	METAL, CHIP 36K 5% 1/10W
R220	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R221	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R222	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R223	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R224	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R225	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R226	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R227	1-216-022-00	s	METAL, CHIP 75 5% 1/10W
R230	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R231	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R232	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R233	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R234	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R235	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R236	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R237	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R238	1-216-052-00	s	METAL, CHIP 1.3K 5% 1/10W
R239	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R240	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R241	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R242	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R243	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R244	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R245	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R246	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R247	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R248	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R249	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R250	1-216-066-00	s	METAL, CHIP 5.1K 5% 1/10W
R251	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R252	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R253	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R254	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R255	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R256	1-216-017-00	s	METAL, CHIP 47 5% 1/10W
R257	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R258	1-216-017-00	s	METAL, CHIP 47 5% 1/10W
R259	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R260	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R261	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R262	1-216-295-00	s	METAL, CHIP 0-OHM
RV201	1-238-858-11	s	RES, ADJ, METAL 47K
RV202	1-238-858-11	s	RES, ADJ, METAL 47K
RV203	1-238-853-11	s	RES, ADJ, METAL 1K
RV204	1-228-395-00	s	RES, ADJ, METAL 10K
RV205	1-228-395-00	s	RES, ADJ, METAL 10K
SW201	1-572-272-11	s	SWITCH, SLIDE (1-1-2)

B BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8277-135-A	o	MOUNTED CIRCUIT BOARD, B(N)
C301	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C302	1-101-821-00	s	CERAMIC 0.0022uF 500V
C303	1-101-821-00	s	CERAMIC 0.0022uF 500V
C304	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C305	1-107-911-11	s	ELECT 220uF 20% 50V
C306	1-128-406-11	s	ELECT 33uF 20% 50V
C307	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 50V
C308	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V
C309	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C310	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C311	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C312	1-163-009-11	s	CERAMIC, CHIP 0.001uF 10% 50V
C313	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C314	1-126-603-11	s	ELECT 4.7uF 20% 35V
C315	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C316	1-128-595-11	s	ELECT, NONPOLAR 2.2uF 20% 50V
C317	1-136-480-11	s	FILM 0.0015MF 5% 100
C318	1-126-206-11	s	ELECT 100uF 20% 6.3V
C319	1-124-779-00	s	ELECT 10uF 20% 16V
C320	1-124-779-00	s	ELECT 10uF 20% 16V
C321	1-127-558-11	s	ELECT(SOLID) 10uF 20% 10V
C322	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C323	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C324	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C325	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C326	1-127-554-11	s	ELECT SOLID 3.3uF 20% 25V
C327	1-126-204-11	s	ELECT 47uF 20% 16V
C329	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C330	1-126-206-11	s	ELECT 100uF 20% 6.3V
CN301	1-564-704-11	o	PIN, CONNECTOR 2P
D301	8-719-400-20	s	DIODE MA152WA
D302	8-719-820-97	s	DIODE U05G4B48
D303	8-719-710-04	s	PHOTO COUPLER NJL5151MB
D305	8-719-801-48	s	DIODE 1SS193
D306	8-719-157-69	s	DIODE RD20M-B
D307	8-719-118-18	s	DIODE RD39M-B
D308	8-719-106-43	s	DIODE RD9.1M-B1
D309	8-719-118-18	s	DIODE RD39M-B
D310	8-719-118-18	s	DIODE RD39M-B
D311	8-719-938-75	s	DIODE SB05-05CP
D312	8-719-938-75	s	DIODE SB05-05CP
D313	8-719-710-04	s	PHOTO COUPLER NJL5151MB
D314	8-719-938-75	s	DIODE SB05-05CP
D315	8-719-400-20	s	DIODE MA152WA
D316	8-719-106-43	s	DIODE RD9.1M-B1
D317	8-719-800-76	s	DIODE 1SS226
D318	8-719-800-76	s	DIODE 1SS226
F301	⚠ 1-532-777-21	s	FUSE, MICRO (SECONDARY)
IC301	8-759-926-07	s	IC SN74HC132NS
IC302	8-759-521-35	s	IC TL5001CD
IC303	8-759-250-81	s	IC TC5081AP
IC304	8-759-084-16	s	IC NJM78L15UA
L301	1-424-102-11	s	FILTER, LINE
L302	1-412-062-11	s	INDUCTOR, CHIP 47uH
L303	1-412-062-11	s	INDUCTOR, CHIP 47uH

(B BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
L304	1-412-062-11	s	INDUCTOR, CHIP 47uH
L305	1-412-788-41	s	INDUCTOR 10uH
L306	1-412-032-11	s	INDUCTOR, CHIP 100uH
L307	1-412-788-41	s	INDUCTOR 10uH
Q301	8-729-027-44	s	TRANSISTOR DTC114TKA-T146
Q302	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q303	8-729-017-55	s	TRANSISTOR 2SA1419S
R301	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R303	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R304	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R305	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R306	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R307	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R308	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R309	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R310	1-216-692-11	s	METAL, CHIP 51K 0.5% 1/10W
R311	1-216-690-11	s	METAL, CHIP 43K 0.5% 1/10W
R312	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R313	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R314	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R315	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R316	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R317	1-216-295-00	s	METAL, CHIP 0-OHM
R318	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R319	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R320	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R321	1-216-692-11	s	METAL, CHIP 51K 0.5% 1/10W
R322	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R323	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R324	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R325	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R328	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
RV301	1-230-375-11	s	RES, ADJ, METAL 220K
RV302	1-238-857-11	s	RES, ADJ, CERMET 22K
T301	1-423-951-11	s	TRANSFORMER, DC-DC CONVERTER

IM BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-3016-430-A	o	MOUNTED CIRCUIT BOARD, IM
C101	1-126-193-11	s	ELECT 1uF 20% 50V
C102	1-163-031-11	s	CERAMIC, CHIP 0.01uF 50V
C103	1-126-205-11	s	ELECT 47uF 20% 6.3V
C104	1-163-031-11	s	CERAMIC, CHIP 0.01uF 50V
C105	1-126-602-11	s	ELECT 3.3uF 20% 50V
C106	1-163-038-91	s	CERAMIC, CHIP 0.1uF 25V
C107	1-163-031-11	s	CERAMIC, CHIP 0.01uF 50V
L101	1-412-788-41	s	INDUCTOR 10uH
Q101	8-729-012-35	s	TRANSISTOR 2SK711-BL
R101	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R102	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R103	1-216-103-00	s	METAL, CHIP 180K 5% 1/10W
R104	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R105	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R106	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
W101	1-751-435-11	s	CABLE, FLAT (1.0MM PITCH)

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
2pcs	1-500-298-11	s	CORE
TM101	1-537-243-21	s	TERMINAL BOARD (WITH SCREW)
J201	1-562-261-21	o	CONNECTOR, BNC "VIDEO OUT"
J202	1-580-172-11	s	CONNECTOR, MICRO 4P, FEMALE "LENS"

HARDWARE LIST

Ref. No. or Q'ty	Part No.	SP	Description
#1	7-621-773-95	s	SCREW +B 2.6X6
#2	7-621-283-10	s	SCREW +P 2X10
#3	7-621-772-20	s	SCREW +B 2X5
#4	7-685-204-19	s	SCREW +KTP 2X6 TYPE-2 NON-SLIT
#5	7-685-105-19	s	SCREW +P 2X8
#6	7-623-505-01	s	LUG, 2

PACKING MATERIALS & SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-580-173-11	s	CONNECTOR, MICRO 4P, MALE
1pc	3-757-367-25	s	MANUAL, INSTRUCTION
1pc	3-757-369-15	s	MANUAL, INSTRUCTION
1pc	4-041-517-03	o	CUSHION

FRAME

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J201	1-562-261-21	o	CONNECTOR, BNC "VIDEO OUT"
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